CATALOG DOCUMENTATION
REGIONAL EMAP DATABASE
1993-1994 NEW YORK/NEW JERSEY HARBOR SYSTEM
AMPHIPOD SEDIMENT TOXICITY TEST DATA BY SITE

TABLE OF CONTENTS

1. DATA SET IDENTIFICATION

1.1 Title of Catalog document

Regional EMAP Database
1993-1994 New York/New Jersey Harbor System
Amphipod Sediment Toxicity Test Data by Site

1.2 Author of the Catalog entry

Melissa Hughes, OAO Corporation

1.3 Catalog revision date

7 January 1997

1.4 Data set name

AMPHIPOD SEDIMENT TOXICITY TEST DATA BY SITE

1.5 Task Group

Regional Environmental Monitoring and Assessment Program

1.6 Data set identification code

222

1.7 Version

001

1.8 Requested Acknowledgment

If you plan to publish these data in any way, EPA requires a standard statement for work it has supported:

"Although the data described in this article have been funded wholly or in part by the U. S. Environmental Protection Agency through its EMAP-Estuaries Program, it has not been subjected to Agency review, and therefore does not necessarily reflect the views of the Agency and no official endorsement should be inferred."

2. INVESTIGATOR INFORMATION

2.1 Principal Investigator

Ms. Darvene A. Adams
U.S. Environmental Protection Agency - Region II

2.2. Investigation Participant

Mr. Joel S. O'Connor
U.S. Environmental Protection Agency - Region II

3. DATA SET ABSTRACT

3.1 Abstract of the Data Set

The AMPHIPOD SEDIMENT TOXICITY TEST data set reports mean results of sediment toxicity tests conducted using the tube-dwelling amphipod, Ampelisca abdita. The samples were taken in the New York/New Jersey Harbor region. Five replicate 10-day, static, non-renewal toxicity tests were compared to results of a control test.

3.2 Keywords for the Data Set

sediment toxicity test, amphipod, Ampelisca abdita

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

The project was designed to support resource management decisions related to pollution control and remediation throughout the New York/New Jersey (NY/NJ) Harbor and Bight Apex and to assist the

New York-New Jersey Harbor Estuary Program (HEP) in developing a contaminant monitoring strategy to be included in the Comprehensive Conservation and Management Plan (CCMP) for the NY/NJ Harbor system.

4.2 Data Set Objective

To provide an overview of the effect of sediment contamination on the benthos in the NY/NJ harbor region.

4.3 Data Set Background Discussion

The New York/New Jersey Harbor System has been susceptible to toxic contamination due to surrounding land uses. Harbor sediments are contaminant reservoirs which can function as a secondary source of these land use contaminants. Contaminated sediments pose a substantial threat to Harbor resources and are a management challenge. The ecological significance of contaminant levels documented from purely chemical surveys is unknown in the absence of biological communities, such as the benthos, being exposed to these materials. Areas where contaminant levels are high but biological availability and toxicity are low may be addressed best with management strategies different than those appropriate for areas where significant impacts to biota are evident.

4.4 Summary of Data Set Parameters

AMPHIPOD SEDIMENT TOXICITY TEST data set values were based on calculations performed on replicate test results.

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

Collect sediment grab samples suitable for conducting sediment toxicity test using the amphipod Ampelisca abdita.

5.1.2 Sample Collection Methods Summary

The grab sampler was lowered through the water column; the grab penetrated the sediment by gravity releasing a trigger allowing the jaws to close. When the grab was pulled from the sediment using the winch, the jaws closed, encapsulating the sediment sample.

Multiple grabs were required to collect enough volume for analysis. Overlying water was carefully drained. The remaining top 2 cm of sediment from each grab was removed using stainless steel spoons. A composite of all grabs was homogenized in a glass bowl for 10 minutes. A subsample was removed for toxicity tests and transferred to a sample container that was stored on ice.

5.1.3 Sampling Start Date

July 1993
July 1994

5.1.4 Sampling End Date

September 1993
September 1994

5.1.5 Platform

Sampling was conducted from two U.S.EPA research vessels, the R/V CLEAN WATERS and OSV PETER W. ANDERSON.

5.1.6 Sampling Gear

A 0.04-m2 or 0.1-m2, stainless steel, Young-modified Van Veen Grab sampler was used to collect sediment grabs. This grab sampled an area of 440 cm2 and a maximum depth of penetration in the sediment of 10 cm.

5.1.7 Manufacturer of Sampling Equipment

Young's Welding, Sandwich, MA

5.1.8 Key Variables

No data were recorded at the time of sample collection.

5.1.9 Collection Method Calibration

The sampling gear did not require any calibration. It required inspection for deformities incurred due to mishandling or impact on rocky substrates.

5.1.10 Sample Collection Quality Control

A successful grab had relatively level, intact sediment over the entire area of the grab and a sediment depth at the center of at least 5 centimeters. Unacceptable grabs included those with grossly slumped surfaces and those completely filled to the top, where the sediment was in direct contact with the hinged top.

Care was taken to avoid sediment that had touched the surface of the grab and to use only samples with undisturbed surfaces. Clean stainless steel spoons and glass mixing bowls were used to prevent accidental contamination. The van Veen Grab was rinsed with ambient seawater between grabs at a station and thoroughly cleaned with detergent and water between stations.

5.1.11 Sample Collection Method Reference

Reifsteck, D.M., C.J. Strobel and D.J. Keith. 1993. Environmental Monitoring and Assessment Program - Near Coastal Component: 1993 Virginian Province Field Operations and Safety Manual. U.S. EPA NHEERL-AED. Narragansett, RI.

5.2 Data Preparation and Sample Processing

5.2.1 Sample Processing Objective

Process sediment samples suitable for conducting sediment toxicity tests.

5.2.2 Sample Processing Methods Summary

Control sediment was press-sieved through a 0.5 mm mesh stainless steel sieve to remove resident amphipods and debris. Test sediment was press-sieved through a 2.0 mm sieve to remove large debris and predaceous organisms. If amphipods were present, the test sediments were press-sieved through a 10 mm stainless steel sieve. Organisms were acclimated at 20 deg C and 30 ppt salinity prior to testing.

For each toxicity test, 200 ml of composited, press-sieved sample were placed in 1 L glass test chambers and covered with 600 ml of seawater. Five replicate test chambers were used for each sample. Each replicate contained 20 organisms.

Post-test enumeration of amphipods was performed without knowledge of sample identity to prevent bias. If less than 20 amphipods were found, the test sediment was stored in the dark for up to 48 hours to encourage emergence of any remaining amphipods.

5.2.3 Sample Processing Method Calibration

The laboratories conducting the tests (USEPA Region 2 Bioassay Laboratory, Edison, NJ and SAIC, Narr., RI) participated in in an interlaboratory comparison exercise.

5.2.4 Sample Processing Quality Control

Sodium dodecyl sulfate (SDS) was used as a reference toxicant to evaluate the sensitivity of each batch of amphipods.

5.2.5 Sample Processing Method Reference

ASTM. 1991. Standard guide for conducting 10-day static Sediment toxicity tests with marine and estuarine amphipods, E1367-91. American Society for Testing Materials, Phil., PA.

ASTM. 1992. Standard guide for conducting 10-day static Sediment toxicity tests with marine and estuarine amphipods, E1367-92. American Society for Testing Materials, Phil., PA.

U.S. EPA. 1993. EMAP Laboratory Methods Manual: Estuaries. U.S. Environmental Protection Agency, Office of Research and Development, Environmental Monitoring Systems Laboratory, Cincinnati, OH.

6. DATA MANIPULATIONS

6.1 Name of new or modified values

SRVPCCON - Ampelisca survival (mean) as % of Control
SRV_CON - Ampelisca % survival

6.2 Data Manipulation Description

NA

6.3 Data Manipulation Examples

NA

7. DATA DESCRIPTION

7.1 Description of Parameters

#	Parameter SAS Name	Data Type	Len	Format	Parameter Label
1	STATION	Char	10	$10.	Station Identifier
2	EVNTDATE	Num	8	DATE7.	Date
3	SRVPCCON	Num	8	3.	Ampelisca Surv as % of Control
4	SRV_PCT	Num	8	3.	Ampelisca % Survival

7.1.6 Precision to which values are reported

The precision is indicated by the attribute format reported under 7.1

7.1.7 Minimum value in data set

SRVPCCON 0
SRV_PCT 0

7.1.8 Maximum value in Data Set

SRVPCCON 108
SRV_PCT 99

7.2 Data Record Example

7.2.1 Column Names for Example Records

STATION EVNTDATE SRVPCCON SRV_PCT

7.2.2 Example Data Records

OBS	STATION	EVNTDATE	SRVPCCON	SRV_PCT
1	BA002	03OCT93	99	96
2	BA005	03OCT93	87	84
3	BA007	04OCT93	95	92
4	BA010	04OCT93	87	85
5	BA012	04OCT93	100	98

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude

-74 Degrees 16 Minutes 17.76 Decimal Seconds

8.2 Maximum Longitude

-73 Degrees 21 Minutes 0.72 Decimal Seconds

8.3 Minimum Latitude

40 Degrees 10 Minutes 35.00 Decimal Seconds

8.4 Maximum Latitude

41 Degrees 4 Minutes 53.22 Decimal Seconds

8.5 Name of area or region

New York/New Jersey Harbor System

Six sub-basins were sampled in the New York/New Jersey Harbor, including: Upper Harbor, Newark Bay, Lower Harbor (includes Raritan and Sandy Hook Bays), Jamaica Bay, western Long Island Sound and the New York Bight Apex. For purposes of this study, the region includes the lower portions of the Hudson, Passaic, Harlem, Hackensack and Raritan Rivers, upstream to a near-bottom salinity of 15 ppt, the East River to Long Island Sound and Lower Harbor to the Atlantic Ocean. The New York Bight Apex is defined as the area of ocean bounded on the northwest by the transect from Sandy Hook, NJ to Rockaway Point, NY, the east by 73 deg 30' W longitude and the south by 40 deg. 10'N latitude. The eastern boundary of the western Long Island Sound sub-basin is 73 deg 24' W longitude (from Eaton's Neck Point, NY to Norwalk, CT).

9. QUALITY CONTROL AND QUALITY ASSURANCE

9.1 Data Quality Objectives

Quality assurance goals were developed and followed for each QA sample type and for each analysis.

9.2 Quality Assurance/Quality Control Procedures

Minimum control survival for satisfying test performance criteria was 90%.

Final organism counts were confirmed by a second scientist.

9.3 Quality Assessment Results

The in-house QC measures met the requirements established in the QA Plan.

9.4 Unassessed Errors

NA

10. DATA ACCESS

10.1 Data Access Procedures

Data can be downloaded from the WWW server.

10.2 Data Access Restrictions

Data can only be accessed from the WWW server.

10.3 Data Access Contact Persons

Ms. Darvene A. Adams
U.S. EPA Region II

10.4 Data Set Format

NA

10.5 Information Concerning Anonymous FTP

Data cannot be accessed via ftp.

10.6 Information Concerning Gopher and WWW

Data can be downloaded from the WWW servers.

10.7 EMAP CD-ROM Containing the Data Set

Data are not available on CD-ROM

11. REFERENCES

Adams, D.A. and M. Hunt. 1993. Quality Assurance Project Plan for Environmental Monitoring Projects, "Sediment Quality of the NY/NJ Harbor." U.S. Environmental Protection Agency-Region 2. Edison, NJ.

Adams, D.A., J.S. O'Connor and S.B. Weisberg. 1996. Sediment Quality of the NY/NJ Harbor System. Draft Final Report. U.S. Environmental Protection Agency-Region 2. Edison, NJ. October 1996.

ASTM. 1991. Standard guide for conducting 10-day static Sediment toxicity tests with marine and estuarine amphipods, E1367-91. American Society for Testing Materials, Phil., PA.

ASTM. 1992. Standard guide for conducting 10-day static Sediment toxicity tests with marine and estuarine amphipods, E1367-92. American Society for Testing Materials, Phil., PA.

Reifsteck, D.M., C.J. Strobel and D.J. Keith. 1993. Environmental Monitoring and Assessment Program - Near Coastal Component: 1993 Virginian Province Field Operations and Safety Manual. U.S. EPA NHEERL-AED. Narragansett, RI.

U.S. EPA. 1993. EMAP Laboratory Methods Manual: Estuaries. U.S. Environmental Protection Agency, Office of Research and Development, Environmental Monitoring Systems Laboratory, Cincinnati, OH.

12. TABLE OF ACRONYMS

13. PERSONNEL INFORMATION

Principal Investigator
Ms. Darvene A. Adams
Monitoring and Assessment Branch
Division of Environmental Science and Assessment
U.S. Environmental Protection Agency - Region II
2890 Woodbridge Ave.
Edison, NJ 08837

Joel S. O'Connor
Placed-Based Protection Branch
Division of Environmental Planning and Protection
U.S. Environmental Protection Agency - Region II

Data Librarian, EMAP-IM
Melissa M. Hughes
Signal Corporation
U.S. EPA NHEERL-AED
27 Tarzwell Drive
Narragansett, RI 02882-1197
(401) 782-3184 (Tel.)
(401) 782-3030 (FAX)
hughes.melissa@epa.gov